

# WINSTA E

## Elbow Plating System



## ► Introduction

### Product Specifications

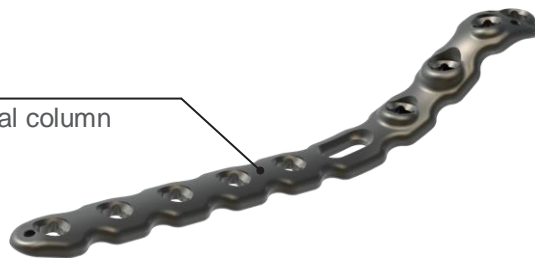
The **WINSTA-E** System offers anatomically formed plates for fixed-angle locking. The plates enable different screw configurations for fixation of the medial and lateral humerus columns and for fixation of the proximal ulna. The plates are fixed with self-tapping cortical screws. The screws are available in non-locking and locking versions.

### Indications (distal humerus)

- Intra-articular fractures of distal humerus
- Supra-condylar fractures of distal humerus
- Nonunion (pseudarthrosis) of distal humerus
- Osteotomy of distal humerus

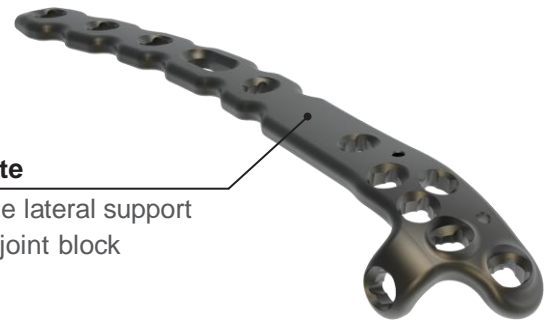
#### medial Plate

- Supporting the medial column



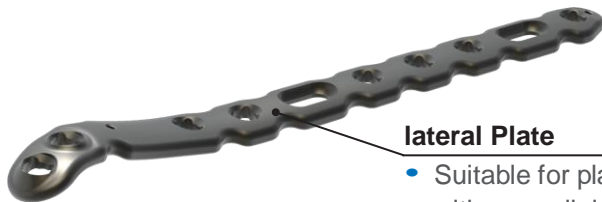
#### posterolateral Plate

- The screws of the lateral support point toward the joint block



#### lateral Plate

- Suitable for plate configurations with a parallel arrangement



### Indications (olecranon & proximal ulna)

- Extra- and intra-articular olecranon fractures
- Pseudarthrosis of proximal ulna
- Osteotomies of olecranon

#### Olecranon Plate

- Locking fixation of the olecranon and the proximal ulna



The following surgical techniques describe the placement of Ø 3.5 mm locking cortical screws. The surgical techniques for the Ø 2.7 mm locking cortical screws are identical in principle but use different instruments (these are stated in brackets).

## ► Surgical Technique - Distal Humerus

### Definition of the Plate Configuration

- Depending on the fracture pattern, the suitable plate type and the required plate length are chosen first. This can be realized by using X-ray template and trial implant.

#### Note:

- On fractures of AO type A and C, two distal humerus plates (supporting the medial and lateral columns) are required to achieve sufficient stability for early mobilization.
- Regardless of the arrangement of the plates, care should be taken to use two plates of different lengths.

### 90° arrangement

#### WINSTA-E medial Plate

- Positioning: medial column, medial
- Alignment of distal screws: mediolateral

#### WINSTA-E posterolateral Plate

- Positioning: lateral column, dorsal
- Alignment of distal screws: lateromedial, postero-anterior and ascending



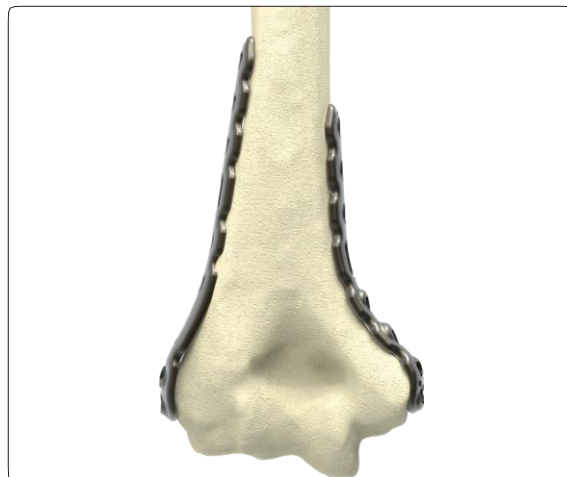
### 180° arrangement

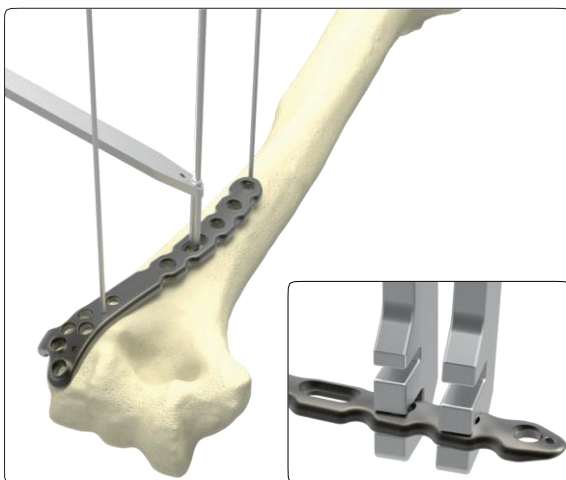
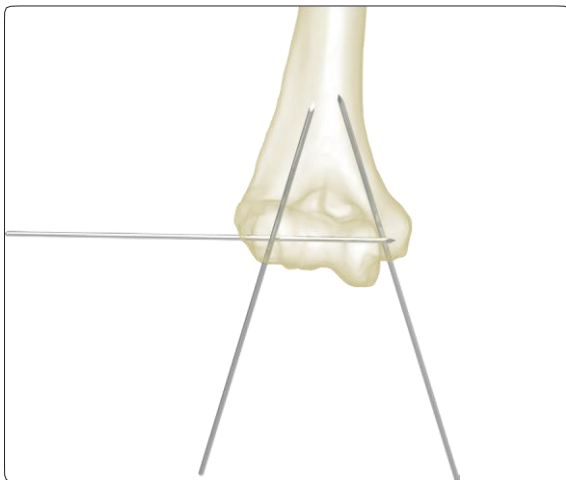
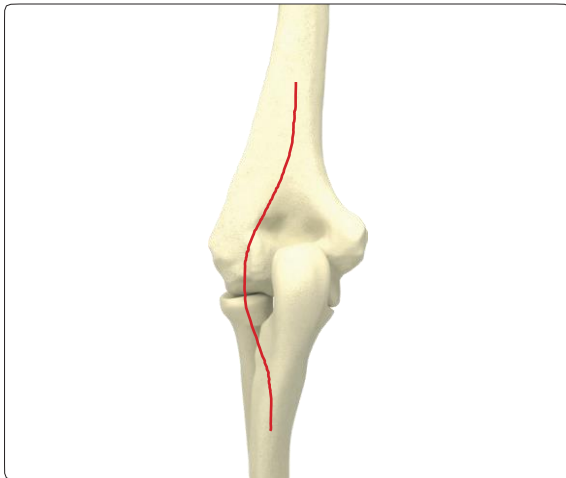
#### WINSTA-E medial Plate

- Positioning: medial column, medial
- Alignment of distal screws: mediolateral

#### WINSTA-E lateral Plate

- Positioning: lateral column, lateral
- Alignment of distal screws: lateromedial





### Positioning of the Patient and Access

- Position the patient in a prone position or in a lateral position so that the forearm can be flexed through more than 120°.
- Access is made with a slightly curved posterior incision. Here, the incision should be guided around the olecranon on the radial side.
- Chevron osteotomy of the olecranon can be used to achieve optimal fracture access in the case of a comminuted fracture.

### Note:

- Identify and protect the ulnar nerve.

### Repositioning of the Fracture

#### Instruments

REF 11.90020.150      Kirschner Wire Ø 2.0 mm

- The fragments of the joint block are initially repositioned and provisionally fixed with K-wires.
- Afterwards, stable fixation of the joint block on the medial and lateral columns of the distal humerus is performed.
- The joint block can be repositioned if necessary using independent screws.

### Note:

- The inserted K-wires should not obstruct the subsequent plate positions.

### Fixation of the Lateral Column

#### Instruments

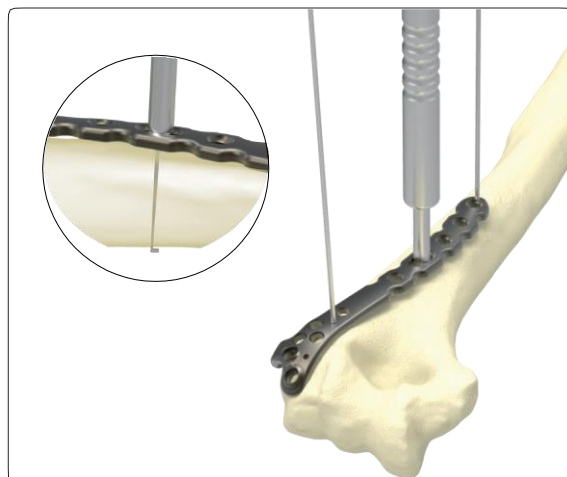
REF 03.20011.125      Drill Bit Ø 2.5 mm  
(REF 03.20011.120      Drill Bit Ø 2.0mm)  
REF 03.20060.025      Double Drill Guide 2.5 / 3.5  
(REF 02.20060.027      Double Drill Guide 2.0 / 2.7)  
REF 03.20110.035/135 Bending Iron  
REF 11.90016.150      Kirschner Wire Ø 1.6 mm

- The required plate size can be determined using the templates. The templates are available in all variations.
- The plate is fixed on the bone with Ø 1.6 mm K-wires.
- Afterwards the plate is fixed in the oval hole. To do this, a Ø 3.5 mm cortical screw is placed in the oval hole.
- The screw hole is pre-drilled bicortically using the drill bit through the double drill guide.
- If required, it may be necessary to adjust the plate to the individual anatomy of the patient. To do this, the plate can be bent with the bending irons. Bending of the implant across a screw hole should be avoided.

## Instruments

REF 03.20100.060 *Length Determination Instrument,  
for Screw up to 60 mm*

- The length is measured using the length determination instrument.
- The hook is hooked into the opposite cortical bone, and the required screw length is read off the scale.

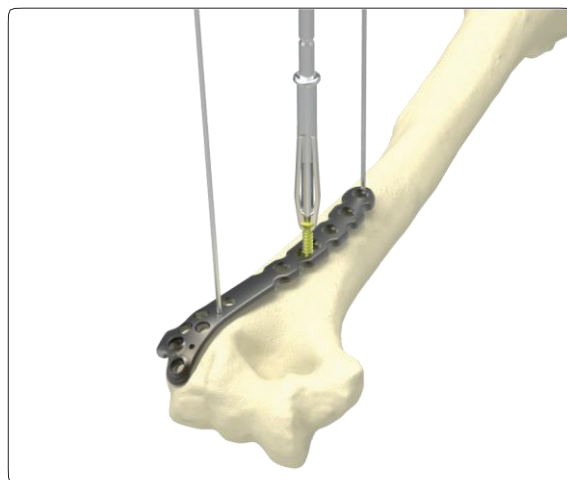


## Instruments

REF 03.20040.025 *Screwdriver, hex 2.5 mm*

REF 03.20040.026 *Holding Sleeve for Screws*

- After the required screw length has been determined, the corresponding cortical screw can be inserted with the screwdriver and the holding sleeve.
- The screw is initially tightened only slightly, so that the plate position can be corrected distally and proximally as required.
- Check the plate position once more and correct it, if necessary, with image amplifier monitoring.
- Once the plate position is correct, the screws are finally tightened, and the plate is thus fixed.



## Monoaxial Insertion of Locking Screws

### Instruments

REF 03.20011.125 *Drill Bit Ø 2.5 mm*

(REF 03.20011.120 *Drill Bit Ø 2.0 mm*)

REF 03.20060.325 *Double Drill Guide 2.5 / ML*

(REF 03.20010.320 *Double Drill Guide 2.0 / ML*)

REF 03.20040.025 *Screwdriver, hex 2.5 mm*

REF 03.20100.060 *Length Determination Instrument,  
for Screw up to 60 mm*

- For monoaxial insertion of Ø 3.5 mm locking cortical screws, the double drill guide 2.5 / ML is inserted into the screw hole.
- The screw hole is pre-drilled bicortically using the Ø 2.5 mm drill bit through the double drill guide.
- The screw length can be determined via the markings of the drill sleeve and the drill bit.
- Alternatively, the screw length can be determined with the length determination instrument.
- The locking cortical screw is tightened with the screwdriver.





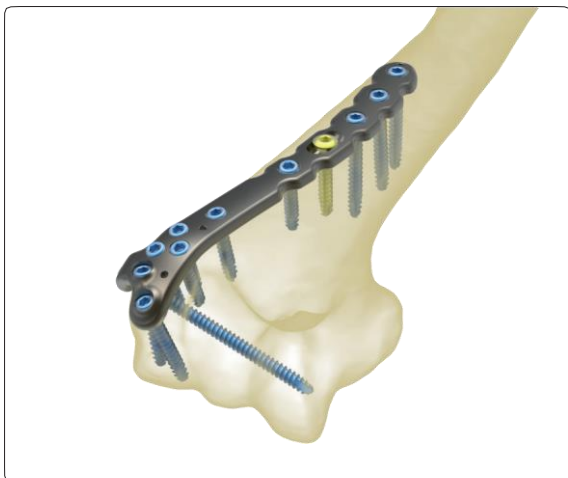


## Polyaxial Insertion of Locking Screws

### Instruments

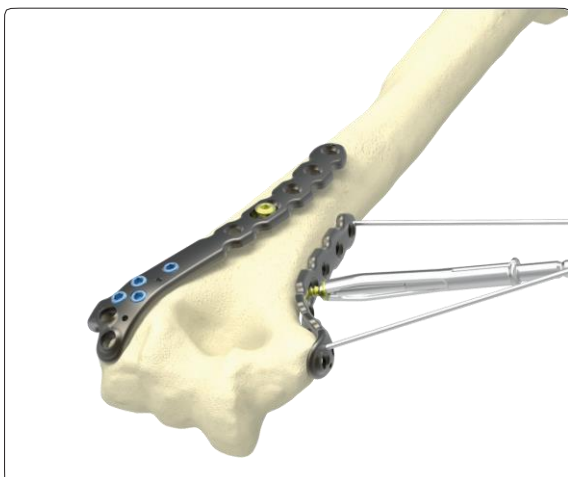
REF 03.20011.125	Drill Bit Ø 2.5 mm
(REF 03.20011.120	Drill Bit Ø 2.0mm)
REF 03.20060.325	Double Drill Guide 2.5 / ML
(REF 03.20010.320	Double Drill Guide 2.0 / ML)
REF 03.20040.025	Screwdriver, hex 2.5 mm
REF 03.20100.060	Length Determination Instrument, for Screw up to 60 mm

- The double drill guide 2.5 / ML is used for polyaxial insertion of Ø 3.5 mm locking cortical screws. The double drill guide is inserted into the corresponding screw hole and enables stepless polyaxial drilling in a cone of 20°.
- The screw hole is pre-drilled bicortically using the Ø 2.5 mm drill bit through the double drill guide.
- Afterwards the screw length is determined with the length determination instrument.
- The locking cortical screw is tightened with the screwdriver.
- Repeat the procedure for all shaft holes into which screws are to be inserted.
- Once all of the screw holes have been occupied, a final radiological check is performed.



## Fixation of the Medial Column

- The oval hole is filled following the procedure described above using a Ø 3.5 mm non-locking cortical screw.
- Locking cortical screws can also be inserted in the remaining screw holes following the method described above either monoaxially or polyaxially.



- Once all of the plate holes that are to be occupied have been fixed with screws, a final radiological check is performed in which the plate position and the anatomical repositioning of the fracture are checked.



## ► Surgical Technique - Olecranon

### Repositioning of the Fracture

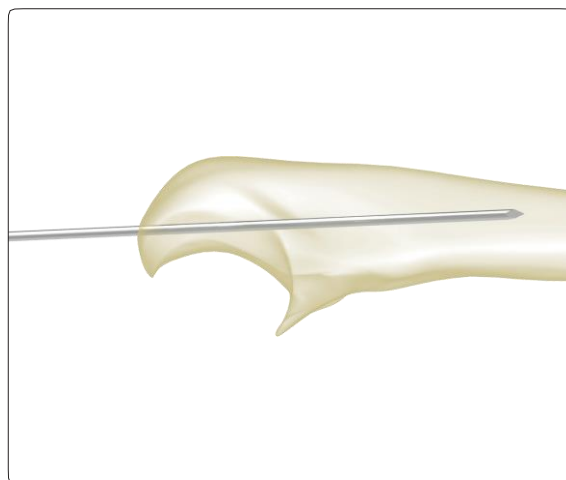
#### Instruments

REF 11.90020.150      Kirschner Wire Ø 2.0 mm

- The fragments are initially repositioned and provisionally fixed with Ø 2.0 mm K-wires.

#### Note:

- The inserted K-wires should not obstruct the subsequent plate positions.

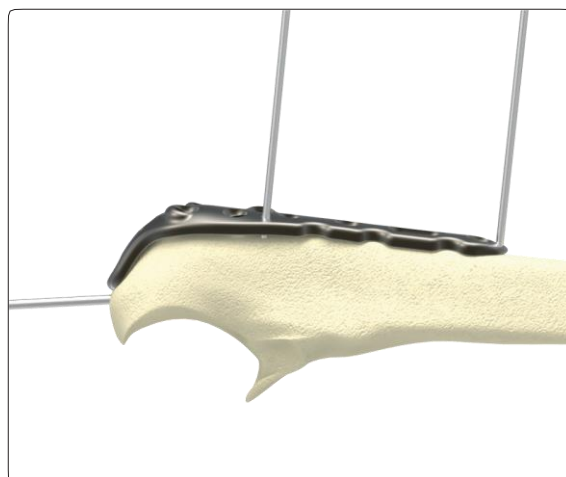


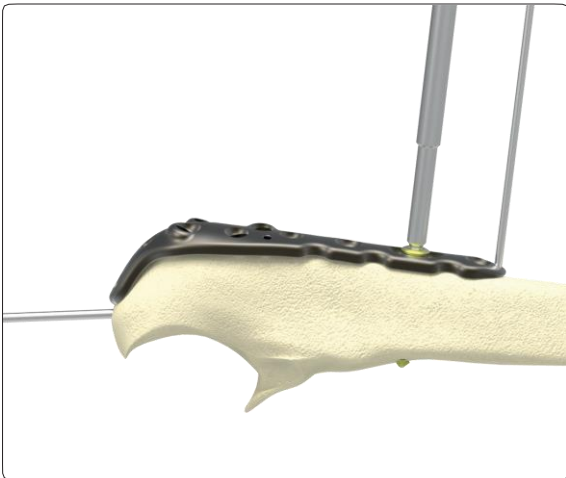
### Positioning of the Plate

#### Instruments

REF 11.90016.150      Kirschner Wire Ø 1.6 mm

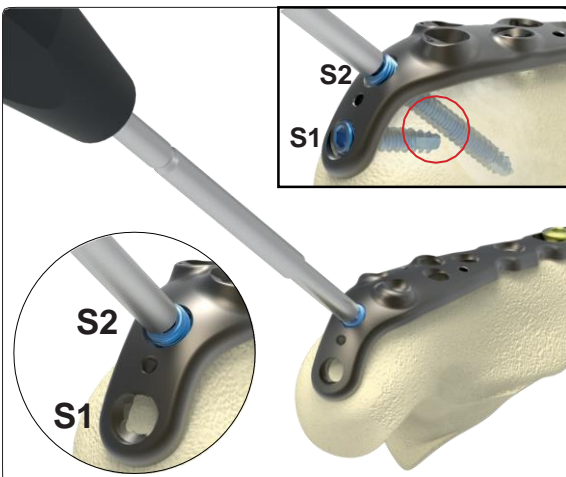
- The plate is fixed on the bone with Ø 1.6 mm K-wires.





### Fixation of the Plate

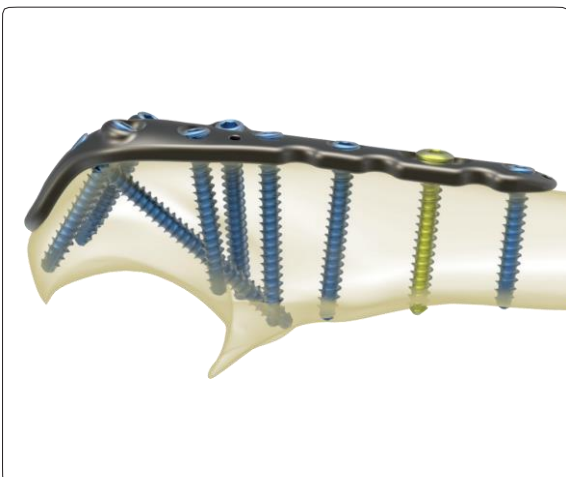
- The oval hole is filled following the procedure described above using a  $\varnothing$  3.5 mm non-locking cortical screw.



- The locking cortical screws  $\varnothing$  3.5 mm ( $\varnothing$  2.7 mm) can also be inserted in the manner described above either monoaxially or polyaxially.

### Note:

- If both screw holes (S1 and S2) are occupied, the screw length and the screw orientation for S1 and S2 must be selected so that no collision occurs.



- Once all of the plate holes that are to be occupied have been fixed with screws, a final radiological check is performed in which the plate position and the anatomical repositioning of the fracture are checked.